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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/606,884 | 06/29/2000 | Xiangxin Bi | N19.12-0040 | 6843 |

7590 05/22/2002

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EXAMINER

CHANAY, CAROL DIANE

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 05/22/2002

7

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/606,884 | BI ET AL. | |
| | Examiner | Art Unit | |
| | Carol Chaney | 1745 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 06 March 2002.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1,4-11 and 13-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1,4-11 and 13-29 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . | 6) <input type="checkbox"/> Other: _____ . |

R spons to Amendment

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 4-11, and 13-29 are pending.

Claims 15-19 are rejected under 35 U.S.C. 112, second paragraph, for reasons of record.

Claims 1, 4-6, 8, 9, 13, 14, and 20-27 are rejected under 35 U.S.C. 102(a) and (e) as being anticipated by Koksbang, US Patent 5,549,880 for reasons of record.

Claims 1, 4-11, 13, 14, and 20-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsen, US Patent 5,443,809

Terminal Disclaimer

The terminal disclaimer filed on 8-3-2000 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Patent 5,952,125 has been reviewed and is accepted. The terminal disclaimer has been recorded. The rejection of claims 1,4-11 and 13-29 under the judicially created doctrine of double patenting over claims 1-24 of U. S. Patent No. 5,952,125 has been withdrawn.

Claim Rejections - 35 USC § 112

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Claims 15-19 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are the conditions under which the cathode exhibits an energy density greater than about 900 Wh/kg. The energy density of a cathode material is not an intrinsic characteristic of a material, but depends upon the conditions under which the energy density measurement is made. Such factors as voltage, current, discharge rate, and the temperature at which measurements are made will affect the value of energy density determined. Thus, without specifying the conditions under which the energy density is measured, the claimed value is unsure.

Claim Rejections - 35 USC § 102

Claims 1, 4-6, 8, 9, 13, 14, and 20-27 are rejected under 35 U.S.C. 102(a) and (e) as being anticipated by Koksbang, US Patent 5,549,880 for reasons of record.

Koksbang discloses secondary lithium batteries comprising a lithiated vanadium oxide cathode active material, a lithium metal anode, and either a polymer electrolyte separator or a solid electrolyte separator. (Note column 5, line 60-column 6, line 3 and column 6, lines 12-35.) The vanadium oxide particles are "on the order of 0.1 to 5 microns", or 100 to 5000 nm, in size. Thus, the sizes of vanadium oxide particles disclosed by Koksbang encompass those recited by the applicants. (Note column 2, lines 58-61.) Polyethylene oxide, acrylate polymers and carbon are used in the cathode composition. (Note column 6, lines 25-35.)

Claim Rejections - 35 USC § 103

Claims 1, 4-11, 13, 14, and 20-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olsen, US Patent 5,443,809 for reasons of record.

Olsen discloses methods of making "electrode-quality" metal oxides having particle sizes from 0.1 microns to 100 microns. (Note abstract and column 4, lines 63-65.) The materials disclosed by Olsen are intended for use in lithium secondary batteries. (Note column 2, lines 39-43.) The disclosure of Olsen differs from applicants' invention in that Olsen does not elaborate details of a lithium secondary battery. However, it would have been obvious to one of ordinary skill in the art to use the metal oxide materials disclosed by Olsen in a conventional secondary lithium battery with conventional binder, separators, and anode active materials because the cathode materials disclosed by Olsen are intended to be used in such a manner.

Response to Arguments

Applicant's arguments filed 3-8-02 have been fully considered but they are not persuasive. Regarding the Koksbang reference, applicant interprets the Koksbang disclosure of "a small particle size on the order of 0.1 to 5 microns" as a disclosure of particles with a distribution from about 0.1 microns to about 5 microns and an average particle size of 2.4 to 2.5 microns. Examiner disagrees with this analysis of the Koksbang reference for the following reasons. The phrase "small particle size on the order of 0.1 to 5 microns" is interpreted by the examiner to describe a *range of average*

particle sizes which are between 0.1 and 5 microns, rather than describing the limits of a particle size range. The powder distribution suggested by applicants would be described as particles between 0.1 and 5 microns in size with an average particle size between 2.4 to 2.5 microns. In addition, even if the Koksbang statement is interpreted as describing the lower and upper limits of a particle size range, the "average particle size" is not necessarily the mean average of the limits. The average particle size would depend upon the details of the particle size distribution. As evidence, Zoval et al., "Electrochemical Preparation of Platinum Nanocrystallites with Size Selectivity on Basal Plane Oriented Graphite Surfaces", *J. Phys. Chem. B*; (Article); 1998; 102(7); 1166-1175 show particles ranging in size from 30 Å to 130 Å and an average size of 54 Å and particles ranging in size from 15 to 85 Å and an average particle size of 43 Å (Fig. 7)

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carol Chaney whose telephone number is (703) 305-3777. The examiner can normally be reached on Mon - Fri 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 703-308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Carol Chaney
Primary Examiner
Art Unit 1745

cc

May 10, 2002